PROCESS FOR DESIGNING AN OPTIMAL VIBRATION ISOLATION MOUNT FOR A DISC DRIVE

5   ABSTRACT OF THE DISCLOSURE

An optimal vibration mount for a disc drive is designed by computing external, Ξ, and internal, Θ, disturbance models for the disc drive and defining an inertia matrix, M, for the disc drive. A state estimator, such as a Kalman filter, is defined based on the inertia matrix and external and internal disturbance

10   models, and a covariance matrix, Σ, is derived based on the filter algebraic Riccati equation. The state estimator gain, H, is calculated from $\Sigma(I \quad 0)'\Theta^{-1}$, and the optimal mount damping, B, and stiffness, K, parameters are derived from the state estimator gain and inertia matrix, $H = \begin{pmatrix} M^{-1}B \\ M^{-1}K \end{pmatrix}$.

15